

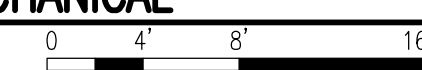
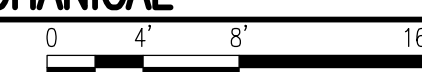
GENERAL NOTES

1. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS. THESE MECHANICAL DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE NOT TO BE SCALED. THE CONTRACTOR SHALL VISIT THE JOB SITE BEFORE WORK BEGINS TO VERIFY ALL DIMENSIONS. NOTIFY THE CONTRACTING OFFICER'S REPRESENTATIVE OF ANY CONFLICTS.
2. COORDINATE DUCT ROUTING AND EQUIPMENT LOCATIONS WITH PLUMBING AND ELECTRICAL INSTALLATIONS AND WITH BUILDING STRUCTURAL MEMBERS. OFFSET DUCTS AND SHIFT EQUIPMENT AS REQUIRED TO AVOID CONFLICTS.
3. COORDINATE LOCATIONS OF CEILING REGISTERS AND DIFFUSERS WITH LIGHTING LAYOUT AND REFLECTED CEILING PLAN.
4. DUCT SIZES INDICATED ARE CLEAR INSIDE DIMENSIONS REQUIRED.
5. REFER TO ELECTRICAL DRAWINGS FOR VOLTAGE REQUIREMENTS OF ALL EQUIPMENT.
6. SUPPORT ALL DUCTS, PIPING, AND EQUIPMENT FROM PRIMARY BUILDING STRUCTURAL MEMBERS. PROVIDE ADDITIONAL STRUCTURAL MEMBERS WHERE NECESSARY TO ACCOMPLISH THIS REQUIREMENT.
7. EQUIPMENT INDICATED TO BE REMOVED SHALL BE REMOVED FROM THE PROJECT SITE IN ITS ENTIRETY INCLUDING ALL HANGERS, ELECTRICAL CONDUIT, WIRING, ELECTRICAL JUNCTION BOXES, PIPING, CONTROLS AND ACCESSORIES RENDERED USELESS OR ABANDONED BY THE REMOVAL OF THE INDICATED EQUIPMENT. REFRIGERANT SHALL BE RECOVERED AND DISPOSED OF ACCORDING TO ASHRAE STANDARD 15, ARI 740, AND EPA GUIDELINES.
8. EXCEPT IN CASES IN WHICH THE MECHANICAL CONTRACTOR IS THE PRIME CONTRACTOR, THE TEST AND BALANCE CONTRACTOR SHALL BE A SUB-CONTRACTOR TO THE PRIME CONTRACTOR AND NOT A SUB-CONTRACTOR TO THE MECHANICAL CONTRACTOR.
9. INSULATE ALL CONDENSATE DRAIN PIPING.
10. COORDINATE ALL FLOOR AND ROOF PENETRATIONS WITH STRUCTURAL DRAWINGS. ALL PENETRATIONS SHOULD FIT BETWEEN EXISTING STRUCTURAL ELEMENTS. IF ANY CONFLICT OCCUR, NOTIFY CONTRACTING OFFICER'S REPRESENTATIVE FOR FURTHER INSTRUCTION.

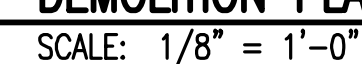
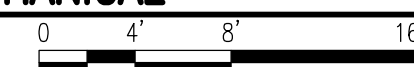
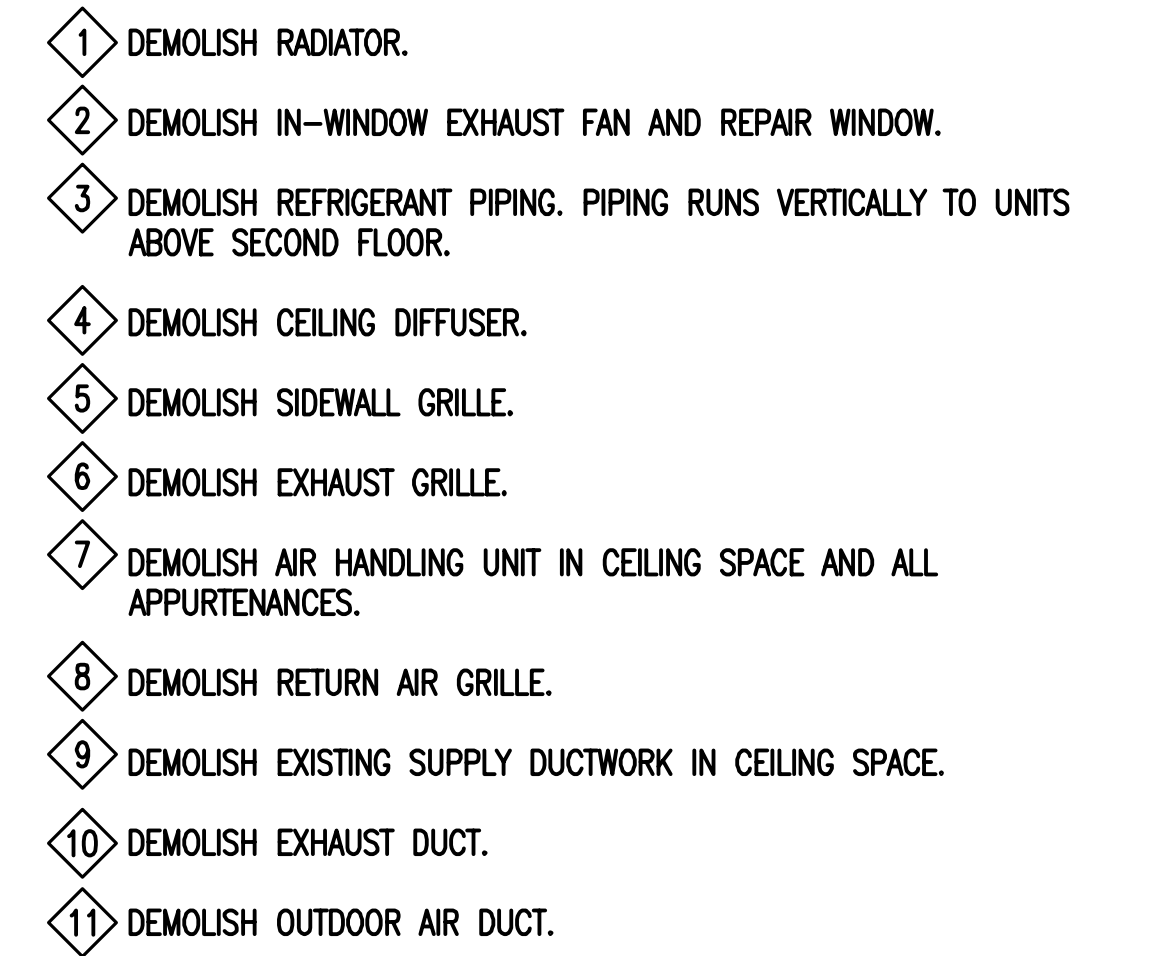
LEGEND	
DEMOLITION PLANS	
	EXISTING DUCT, PIPING OR EQUIPMENT TO BE REMOVED
	EXISTING DUCT, PIPING OR EQUIP. TO REMAIN
NEW WORK PLANS	
	NEW DUCT, PIPING OR EQUIPMENT
	EXISTING DUCT, PIPING OR EQUIPMENT TO REMAIN
	POINT OF CONNECTION/SCOPE OF WORK
	DUCT SIZE: FIRST DIMENSION IS SIDE DRAWN
	DUCT SECTION, POSITIVE
	DUCT SECTION, NEGATIVE
	FLEXIBLE DUCT CONNECTION
	SQUARE ELBOW WITH TURNING VANES
	RADIUS ELBOW WITH TURNING VANES
	TRANSITION
	MANUAL VOLUME DAMPER
	ACCESS DOORS, VERTICAL OR HORIZONTAL
	FIRE DAMPER AND SLEEVE
	RIGID ROUND DUCTWORK
	FLEXIBLE DUCT
	GRILLE DESIGNATION
	SIDEWALL DIFFUSER
	CEILING SUPPLY DIFFUSER
	CEILING RETURN OR EXHAUST REGISTER
	AIR FLOW
	CONCRETE
	WALL MOUNTED T'STAT W/ASSOCIATED EQUIPMENT IDENTIFIED
	REFRIGERANT LINE PAIR
	CONDENSATE DRAIN LINE
	DROPPING OR RISING PIPE
	PIPE SLEEVE THROUGH WALL
	CONCENTRIC PIPE REDUCER
	PITCH OF PIPE ARROW SHOWS DIRECTION OF DROP
	FLEXIBLE CONNECTOR
	BOTTOM CONNECTION FITTING
	TOP CONNECTION FITTING
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	GATE VALVE
	GATE ANGLE VALVE
	GLOBE VALVE
	GLOBE ANGLE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	CHECK SWING GATE VALVE
	BALANCING VALVE

NEW WORK PLANS	
A.F.F.	ABOVE FINISHED FLOOR
B.E.	BOTTOM ELEVATION
CAP.	CAPACITY
C.F.M.	CUBIC FEET PER MINUTE
dB.	DECIBEL
°F	DEGREES FAHRENHEIT
DX	DIRECT EXPANSION
db/wb	DRY BULB/WET BULB
EFF.	EFFICIENCY
EER	ENERGY EFFICIENCY RATIO
E.A.T./L.A.T.	ENTERING AIR TEMP/LEAVING AIR TEMP
ENT./LVG.	ENTERING/LEAVING
E.S.P.	EXTERNAL STATIC PRESSURE
FT.	FEET
F.P.M.	FEET PER MINUTE
HDT	HORIZONTAL DRAW THRU
HP.	HORSEPOWER
IN.	INCHES
IN. W.G. / FT. W.G.	INCHES WATER GAUGE / FEET WATER GAUGE
IPLV	INTEGRATED PART LOAD VALUE
KW.	KILOWATTS
MNFR	MANUFACTURER
MAX.	MAXIMUM
MBH	BTUH x 1000
MIN.	MINIMUM
MIN. EFF.	MINIMUM EFFICIENCY
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OPER.	OPERATING
O.A.	OUTDOOR AIR
%	PERCENT
PRESS.	PRESSURE
P.D.	PRESSURE DROP
R.A.	RETURN AIR
NC	NOISE CRITERIA
R.P.M.	REVOLUTIONS PER MINUTE
SEER	SEASONAL ENERGY EFFICIENCY RATIO
S.A.	SUPPLY AIR
SCR	SILICON CONTROLLED RECTIFIER
TEMP.	TEMPERATURE
T.E.	TOP ELEVATION
UC	UNDERCUT DOOR 3/4" MINIMUM
VAV	VARIABLE AIR VOLUME
W.	WATT
WT.	WEIGHT

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VA FORM 08-6231





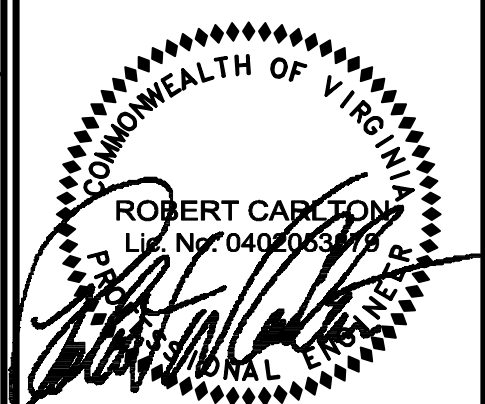
A horizontal scale bar with alternating black and white segments. Above the bar, the numbers 0, 4', 8', and 16 are marked at regular intervals. The bar is divided into four equal segments, each representing 4 feet.



- ① FAN COIL UNIT OPERATES ON HP-1 ZONE.
- ② REFRIGERANT PIPING FROM BRANCH CONTROLLER ON FIRST FLOOR.
- ③ REFRIGERANT PIPING IN NEW CHASE UP TO BRANCH CONTROLLERS ON FIRST FLOOR.
- ④ TERMINATE CONDENSATE DRAIN IN LAUNDRY SINK DRAIN.
- ⑤ REFRIGERANT PIPING TO HEAT PUMP UNITS ON SLAB ON GRADE. SEE FIRST FLOOR PIPING PLAN FOR CONTINUATION.
- ⑥ REFRIGERANT PIPING UP IN NEW CHASE TO MAKE UP AIR UNIT IN ATTIC.
- ⑦ REFRIGERANT PIPING TO MAKE UP AIR CONDENSING UNIT. SEE FIRST FLOOR PIPING PLAN FOR CONTINUATION.
- ⑧ PIPE BASEMENT.
- ⑨ REFRIGERANT PIPING IN NEW CHASE UP TO BRANCH CONTROLLERS ON SECOND FLOOR.
- ⑩ OUTSIDE AIR DUCT DOWN IN THE NEW CHASE FROM MAU-1
- ⑪ 4" DRYER VENT. TERMINATE DUCT WITH EXTERIOR WALL CAP.
- ⑫ USE EXISTING WALL OPENING BELOW FIRST FLOOR WINDOW FOR LOUVER AND WALL CAPS.
- ⑬ REFRIGERANT PIPING UP TO FCU-38 IN DATA ROOM ON FIRST FLOOR.
- ⑭ DDC PANEL FOR VRF SYSTEM.
- ⑮ 3" WATER HEATER COMBUSTION AIR INTAKE. LOCATE ON WALL BELOW FIRST FLOOR WINDOW.
- ⑯ 4" WATER HEATER VENT. LOCATE AT SAME ELEVATION AS INTAKES ON WALL A MINIMUM OF 48" AWAY FROM INTAKE AND WINDOWS.

[illegible]

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**TOLAND
MIZELL
MOLNAR**

Drawing Title: BASEMENT
NEW WORK PLAN –
MECHANICAL

Project Title:

RENOVATE BUILDING 17
VA SALEM

Location:	SALEM, VA
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Date: 03.18.2015

Checked:
WAW

Drawn:
WSS

Project Number:	658-13-120
Building Number:	17
Drawing Number:	2573
	M101
Dwg.	of

OFFICE OF
CONSTRUCTION
AND FACILITIES
MANAGEMENT

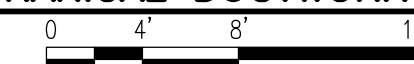
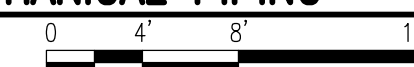




0 4' 8' 16'

FINAL SUBMITTAL

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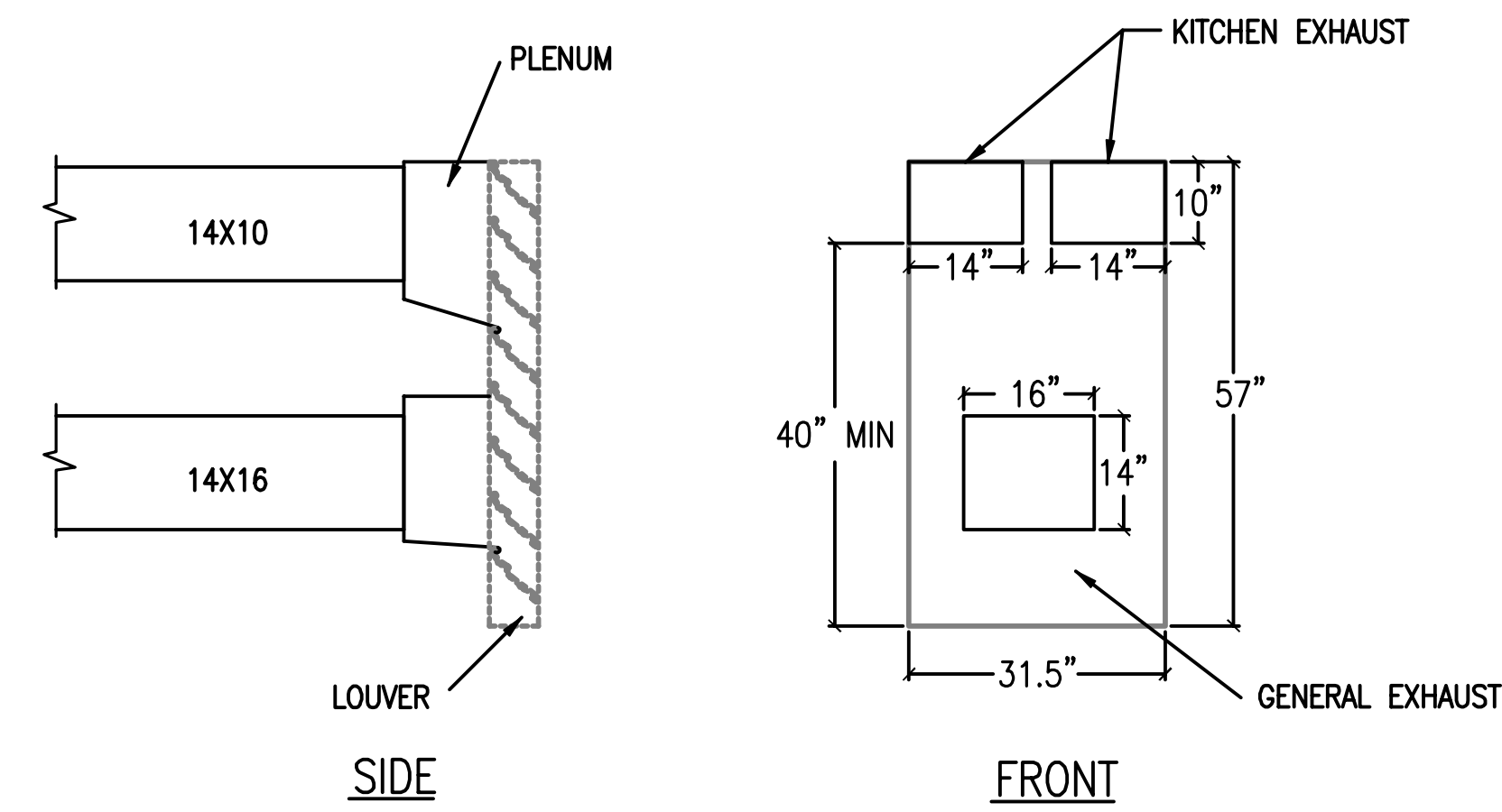
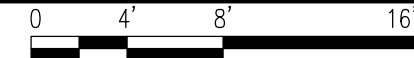
VA FORM 08-6231



- ① CONNECT OUTDOOR AIR DUCT TO ATTIC INTAKE LOUVER. SEE LOUVER
DETAIL SHEET M501.
- ② 12X16 OUTSIDE AIR DUCT DOWN TO SECOND FLOOR.
- ③ GENERAL EXHAUST DUCT UP FROM SECOND FLOOR.
- ④ 30X8 OUTSIDE AIR DUCT DOWN IN NEW CHASE TO FIRST AND SECOND
FLOOR.
- ⑤ 12X8 GENERAL EXHAUST DUCT UP FROM FIRST FLOOR.
- ⑥ 14X10 GREASE DUCT UP FROM FIRST AND SECOND FLOOR.
- ⑦ CONNECT GENERAL EXHAUST AND KITCHEN EXHAUST TO LOUVER. SEE
DETAIL ON THIS SHEET.
- ⑧ CONDENSATE DOWN TO SECOND FLOOR CONDENSATE PIPING.
- ⑨ REFRIGERANT PIPE DOWN IN NEW CHASE TO CONDENSING UNIT ON
SLAB ON GRADE.
- ⑩ DDC PANEL FOR HVAC EQUIPMENT IN ATTIC.



SCALE: $1/8'' = 1'-0''$

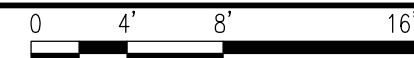


EXHAUST LOUVER DETAIL

SCALE: NONE



SCALE: $1/8'' = 1'-0''$



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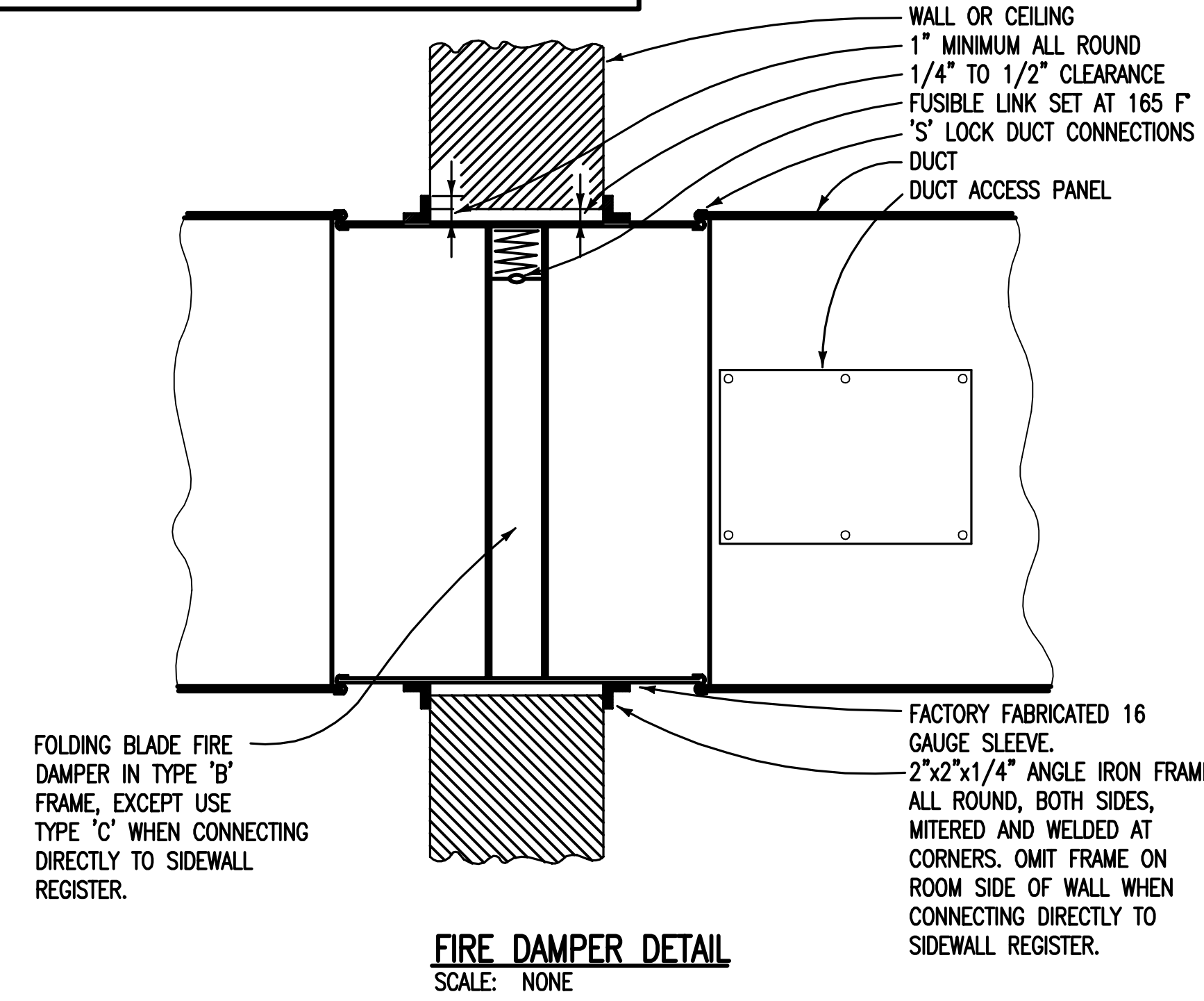
OFFICE OF
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AND FACILITIES
MANAGEMENT

 Department of
Management & Marketing

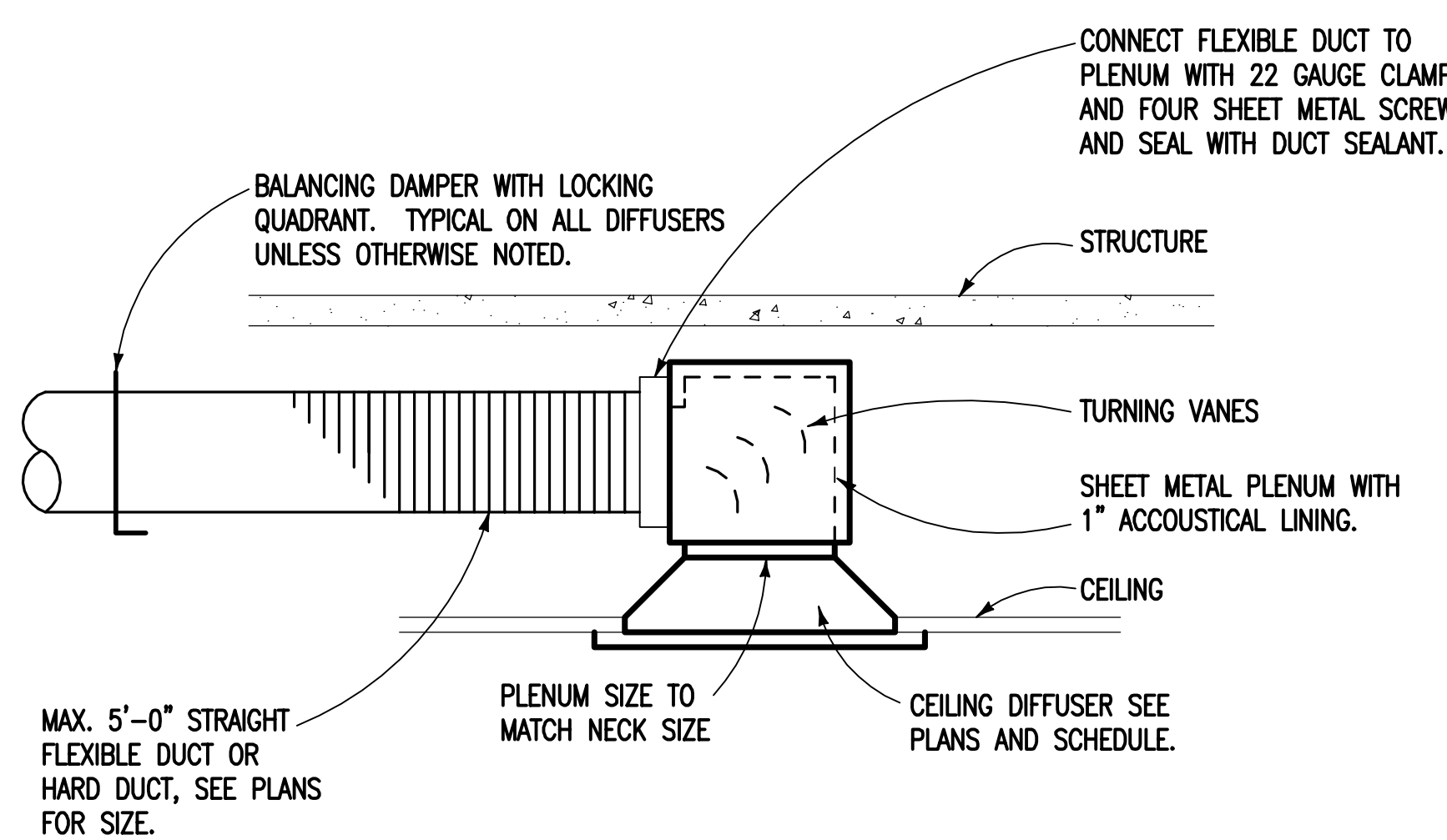
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Plotted By: cgleland
Date: Mar 17, 2015 - 12:52pm

three eighths inch = one foot
one eighth inch = one foot
one quarter inch = one foot
one half inch = one foot
one inch = one foot
one and one half inches = one foot
two inches = one foot
three inches = one foot

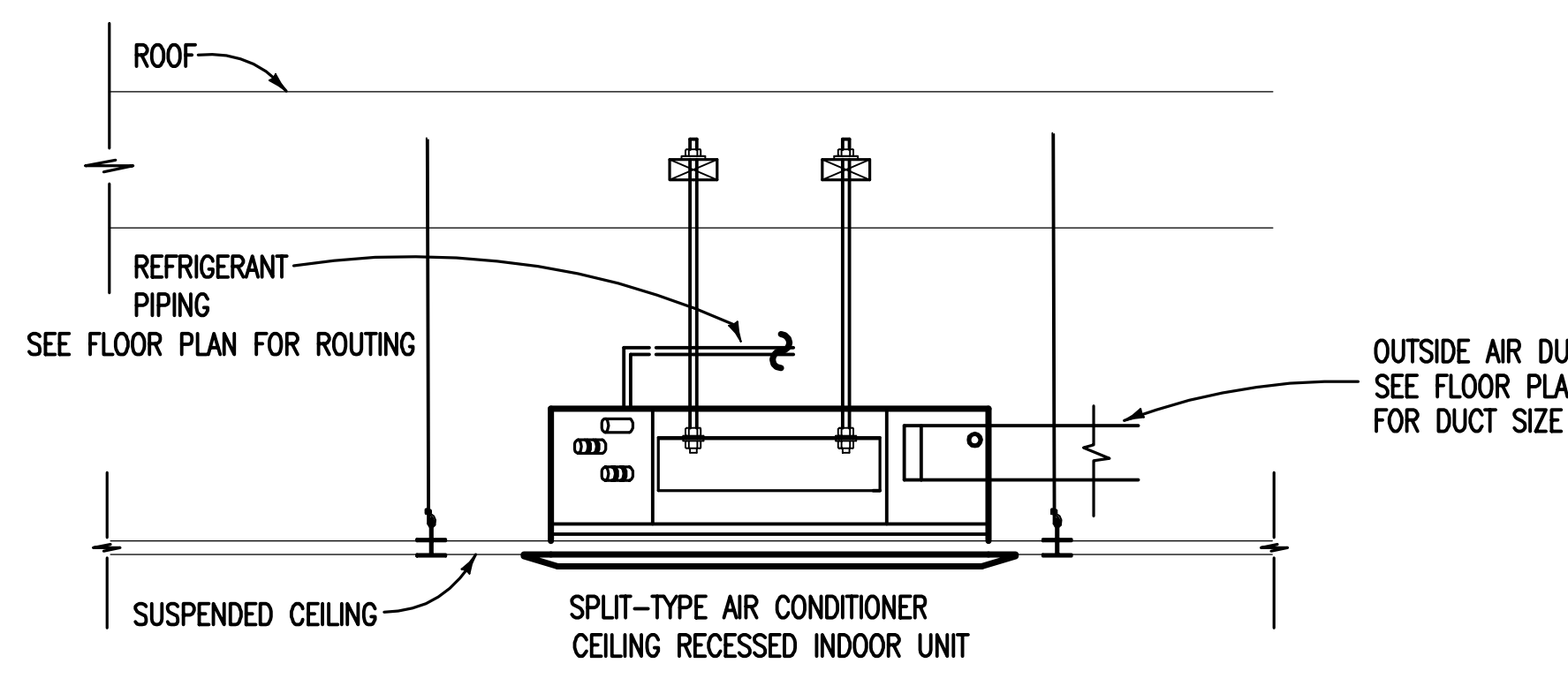
NOTES:
A. HORIZONTAL FIRE DAMPER SIMILAR. PROVIDE SPRING LOADED CURTAIN WITH FUSIBLE LINK SET AT 165°F.
B. DETAIL FOR GENERAL GUIDANCE, INSTALL EACH FIRE DAMPER IN STRICT ACCORDANCE WITH INSTALLATION INSTRUCTIONS PACKED WITH FIRE DAMPER TO ENSURE UL RATING.



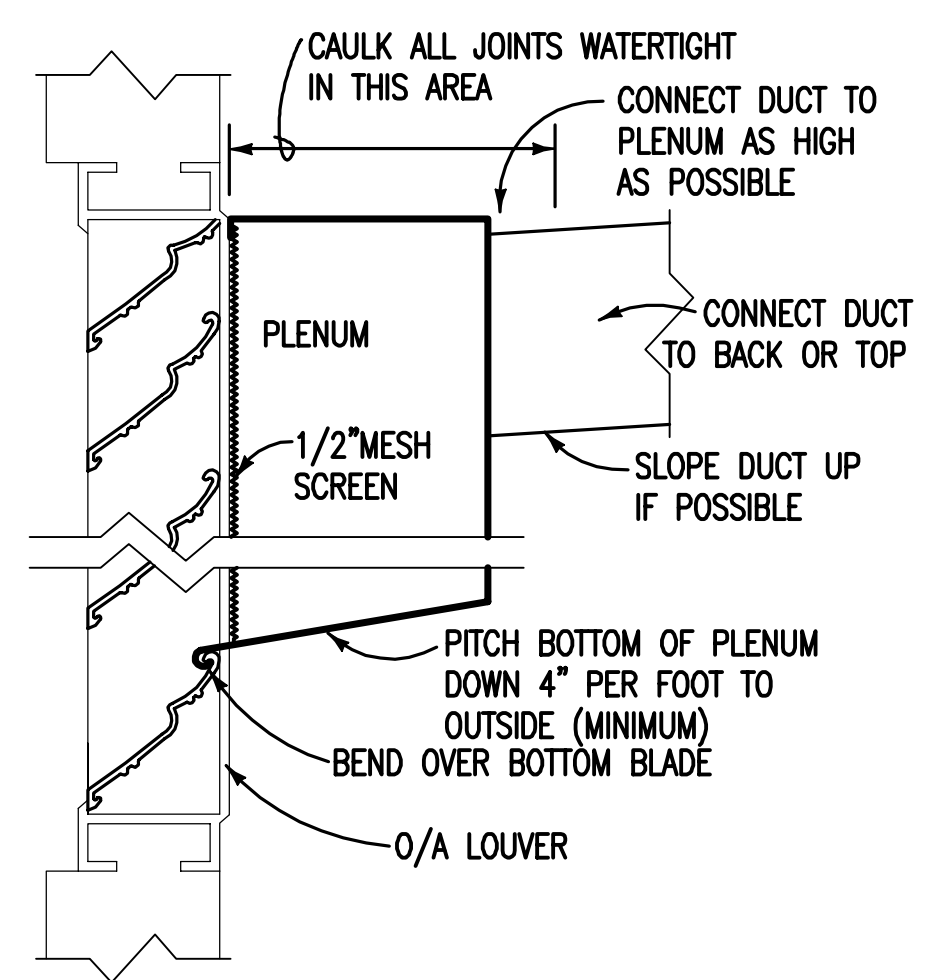
FIRE DAMPER DETAIL
SCALE: NONE



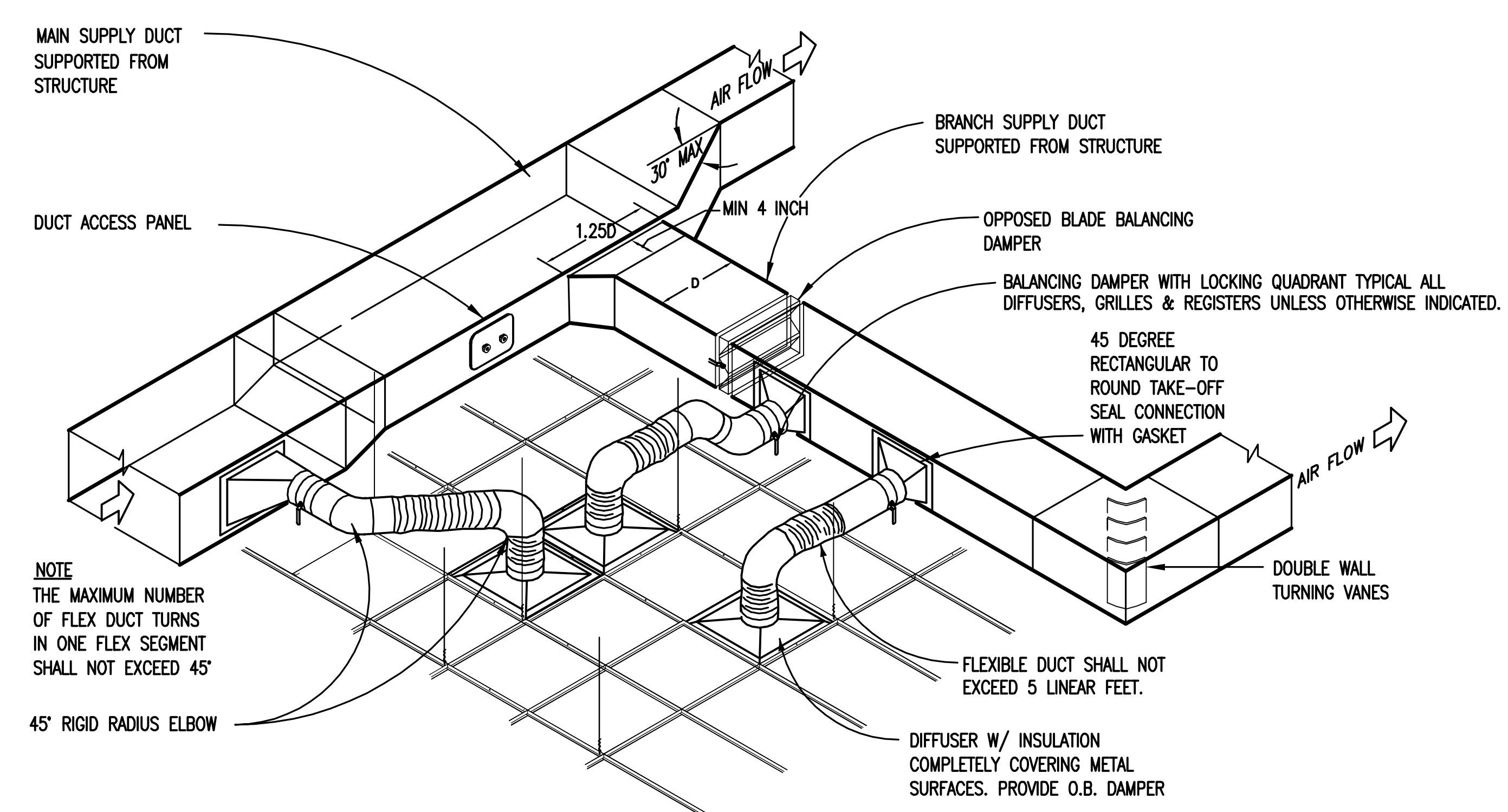
LOW HEAD CLEARANCE DIFFUSER DETAIL
SCALE: NONE



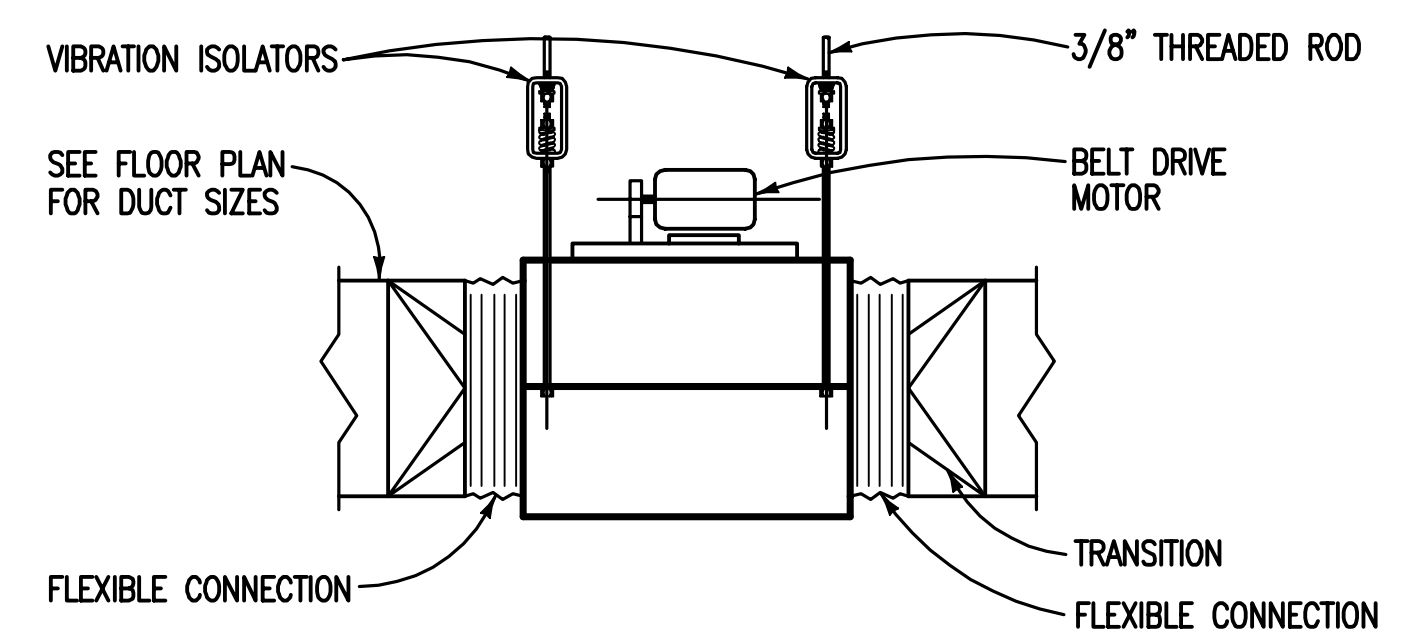
SPLIT SYSTEM AC
SCALE: NONE



DUCT CONNECTION TO WATERPROOF LOUVER
SCALE: NONE



TYPICAL SYSTEM AND MATERIAL INSTALLATION
SCALE: NONE



INLINE FAN SUPPORT DETAIL
SCALE: NONE

		CONSULTANTS:		ARCHITECT:		Drawing Title:		Project Title:		Project Number:		Office of Construction and Facilities Management	
		CLARK•NEXSEN		TOLAND MIZELL MOLNAR		DETAILS – MECHANICAL		RENOVATE BUILDING 17 VA SALEM		658-13-120		OFFICE OF CONSTRUCTION AND FACILITIES MANAGEMENT	
		440 MARTIN LUTHER KING, JR. BLVD MACON, GEORGIA 31201 478-743-8415 FAX 478-743-8239 WWW.CLARKNEXSEN.COM		590 MEANS ST NW SUITE 200 ATLANTA GA 30319 404.343.9774		Approved: Project Director		SALEM, VA		Building Number: 17		Department of Veterans Affairs	
						Date: 03-18-2015		Checked: WAW		Drawing Number: 2573			
								Drawn: WSS		M501 of			

Drawing File: \\VA\201A\5350-Renovate Building 17 VAMC Salem, VA\Drawings\5350 M601.dwg
Plotted By: egileard
Date: Mar 17, 2015 - 12:51pm

CONSULTANTS:

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ARCHITECT:

**TOLAND
MIZELL
MOLNAR**

590 MEANS ST NW SUITE 200
ATLANTA GA 30319
404.343.9774

Drawing Title:
**SCHEDULES –
MECHANICAL**

Approved: Project Director

Project Title:
**RENOVATE BUILDING 17
VA SALEM**

Location:
SALEM, VA

Date:
03-18-2015

Checked:
WAW

Drawn:
WSS

Project Number:
658-13-120
Building Number:
17
Drawing Number:
2573
M601
Dwg. of

**OFFICE OF
CONSTRUCTION
AND FACILITIES
MANAGEMENT**

 Department of
Veterans Affairs

FAN COIL UNIT SCHEDULE

MARK	MITSUBISHI DAIKIN FUJITSU	MODEL NO.	SUPPLY C.F.M.	O.A. C.F.M.	E.S.P. IN. W.G.	MAX. WATTS	TOTAL COOLING MBH	SENSIBLE COOLING MBH	REVERSE CYCLE MBH	NOTES
FCU-1	*	PLFY-P08NCMU-E	320	25	-	90	6.4	5.5	5.9	1;2,3;
FCU-2	*	PLFY-P12NCMU-E	390	15	-	90	10.9	10.4	11.3	1;2,3;
FCU-3	*	PLFY-P08NCMU-E	320	-	-	90	4.7	4.6	5.0	1;2,3;
FCU-4	*	PLFY-P08NCMU-E	320	-	-	90	4.7	4.6	5.0	1;2,3;
FCU-5	*	PLFY-P12NCMU-E	390	15	-	90	11.1	10.8	11.4	1;2,3;
FCU-6	*	PLFY-P12NCMU-E	390	20	-	90	10.5	10.3	11.3	1;2,3;
FCU-7	*	PLFY-P08NCMU-E	320	15	-	90	3.5	3.1	4.2	1;2,3;
FCU-8	*	PLFY-P08NCMU-E	320	15	-	90	3.4	3.0	4.0	1;2,3;
FCU-9	*	PLFY-P08NCMU-E	320	15	-	90	3.3	3.0	3.8	1;2,3;
FCU-10	*	PLFY-P08NCMU-E	320	25	-	90	4.2	3.2	6.5	1;2,3;
FCU-11	*	PLFY-P08NCMU-E	320	15	-	90	3.3	2.9	3.8	1;2,3;
FCU-12	*	PLFY-P08NCMU-E	320	15	-	90	3.3	2.9	3.8	1;2,3;
FCU-13	*	PLFY-P08NCMU-E	320	15	-	90	3.6	3.2	4.4	1;2,3;
FCU-14	*	PLFY-P12NCMU-E	390	15	-	90	8.9	8.5	8.5	1;2,3;
FCU-15	*	PLFY-P12NCMU-E	390	15	-	90	9.8	9.4	9.7	1;2,3;
FCU-16	*	PLFY-P08NCMU-E	320	15	-	90	6.2	6.0	6.7	1;2,3;
FCU-17	*	PLFY-P12NCMU-E	390	25	-	90	8.8	8.6	10.0	1;2,3;
FCU-18	*	PLFY-P08NCMU-E	320	-	-	90	4.8	4.6	4.1	1;2,3;
FCU-19	*	PCFY-P15NKMU-E	390	-	-	90	8.0	7.1	12.0	1;2,4;
FCU-20	*	PLFY-P08NCMU-E	320	15	-	90	5.0	4.8	5.0	1;2,3;
FCU-21	*	PLFY-P12NCMU-E	390	15	-	90	11.3	11.0	11.4	1;2,3;
FCU-22	*	PLFY-P12NCMU-E	390	15	-	90	10.7	10.5	11.3	1;2,3;
FCU-23	*	PLFY-P08NCMU-E	320	15	-	90	3.8	3.5	4.2	1;2,3;
FCU-24	*	PLFY-P08NCMU-E	320	15	-	90	3.6	3.2	3.8	1;2,3;
FCU-25	*	PLFY-P08NCMU-E	320	15	-	90	3.8	3.3	4.0	1;2,3;
FCU-26	*	PLFY-P12NCMU-E	390	15	-	90	11.1	10.6	11.4	1;2,3;
FCU-27	*	PLFY-P08NCMU-E	320	15	-	90	6.1	5.9	6.3	1;2,3;
FCU-28	*	PCFY-P15NKMU-E	390	-	-	90	5.7	5.1	4.5	1;2,4;
FCU-29	*	PLFY-P08NCMU-E	320	15	-	90	3.6	3.2	3.8	1;2,3;
FCU-30	*	PLFY-P08NCMU-E	320	15	-	90	4.0	3.6	4.4	1;2,3;
FCU-31	*	PLFY-P12NCMU-E	390	15	-	90	9.1	8.7	8.5	1;2,3;
FCU-32	*	PLFY-P08NCMU-E	320	25	-	90	4.2	3.3	5.3	1;2,3;
FCU-33	*	PLFY-P12NCMU-E	390	15	-	90	10.2	9.9	10.2	1;2,3;
FCU-34	*	PLFY-P08NCMU-E	320	15	-	90	6.4	6.2	6.7	1;2,3;
FCU-35	*	PLFY-P08NCMU-E	320	-	-	90	5.0	4.8	5.0	1;2,3;
FCU-36	*	PLFY-P08NCMU-E	320	-	-	90	4.9	4.7	5.0	1;2,3;
FCU-37	*	PLFY-P08NCMU-E	320	15	-	90	5.5	5.2	5.4	1;2,3;
FCU-38	*	PKA-A12HA4	425	-	-	30	12.0	6.0	-	1;2,5;

- NOTES
- AIR HANDLING UNIT AND CONDENSING UNIT SHALL BE OF SAME MANUFACTURER AND BE SPECIFICALLY DESIGNED TO OPERATE AS A SET.
 - UNIT SHALL BE PROVIDED WITH SINGLE POINT ELECTRIC CONNECTION.
 - CEILING CASSETTE UNIT HUNG FROM STRUCTURE.
 - CEILING SUSPENDED UNIT HUNG FROM STRUCTURE.
 - WALL MOUNTED INDOOR UNIT.

UNIT HEATER SCHEDULE

MARK	C.F.M.	M/NFR		MODEL NO.	PERFORMANCE		MAX. DIMENSIONS				MOTOR		PIPE SIZE	E.W.T. °F E.A.T. °F W.T.D. °F		NOTES
		TRAN- MODINE			MBH	KW.	P.D. FT. W.G.	LENGTH	WIDTH	HEIGHT	RECESSED DEPTH	WATTS		R.P.M.	3 SPEED	
UH-1	175	*		UHAA	3		14.18	4.0	20.85	4.0	150	600				1;2;
UH-2	175	*		UHAA	3		14.18	4.0	20.85	4.0	150	600				1;2;
UH-3	175	*		UHAA	3		14.18	4.0	20.85	4.0	150	600				1;2;
UH-4	175	*		UHAA	3		14.18	4.0	20.85	4.0	150	600				1;2;
UH-5	400	*		UHEC	3		14.5	6.5	17.75		6.0	1550				3;4;
UH-6	400	*		UHEC	3		14.5	6.5	17.75		6.0	1550				3;4;
UH-7	400	*		UHEC	3		14.5	6.5	17.75		6.0	1550				3;4;
UH-8	400	*		UHEC	3		14.5	6.5	17.75		6.0	1550				3;4;
UH-9	400	*		UHEC	3		14.5	6.5	17.75		6.0	1550				3;4;

- NOTES
- RECESSED.
 - PROVIDE WITH INTEGRAL THERMOSTAT SET TO ENERGIZE THE UNIT AT OR BELOW 65° (ADJUSTABLE).
 - HANG UNIT FROM STRUCTURE.
 - PROVIDE WITH LINE VOLTAGE THERMOSTAT SET TO ENERGIZE THE UNIT AT OR BELOW 65° (ADJUSTABLE).

LOUVER SCHEDULE

MARK	SIZE			MITSUBISHI DAIKIN RUSKIN GREENHECK	MODEL NO.	DUTY			PERFORMANCE		FINISH		ACCESSORIES	NOTES
	NECK IN.	FACE IN.	DEPTH IN.			INTAKE	RELIEF	EXHAUST	C.F.M.	MAX. PRESS. DROP IN. W.G.	MAX. WATER PENETRATION OZ./SF FREE AREA	COLOR BY ARCH. PRIMER	CLEAR LACQUER W/CONTROL DAMPER	
L-1	18X12	18X12	4	*	EDJ			*	235	0.08	0.00	*	*	1;

- NOTES
- PROVIDE WITH SELF DRAINING BLADES.

MAKE-UP AIR UNITS

MARK	DESERT AIRE ADDITION FAON	MODEL NO.	FAN DATA				COOLING DATA								HEATING DATA						MISC				NOTES
			SUPPLY CFM	MAX OA CFM	MIN. OA CFM	FAN HP.	EXT. IN. WG	O.D. D.B. °F	EAT		LAT		TOTAL MBH	SENS MBH	O.D. D.B. °F	EAT D.B. °F	TOTAL MBH INPUT	TOTAL HEATING KW	TYPE		ROOF CURB	MANUAL OA DAMPER	AUTO OA DAMPER	TIME PROG. TESTAT	
									D.B. °F	W.B. °F	D.B. °F	W.B. °F							HYDRONIC FURNACE	ELECT. RES.					
MAU-1	*	QV10	2250	2250	2250	3	1.0	89.6	89.6	72.5	75	65	62.1	35.5	17.3	17.3			40		*		*	*	1;2,3;

- NOTES
- SPLIT SYSTEM WITH CONDENSING UNIT LOCATED ON GRADE AND AHU IN ATTIC.
 - PROVIDE UNIT WITH HOT GAS REHEAT FOR DEHUMIDIFICATION.
 - PROVIDE AUXILIARY DRAIN PAN UNDER INDOOR UNIT IN ATTIC SPACE.

KITCHEN VENTILATION SYSTEM SCHEDULE

HOOD										EXHAUST FAN										MAKEUP AIR UNIT																
MARK	MNF.R	TYPE		MODEL NO.	DIMENSIONS L X W X H (IN.)	MAX. WEIGHT LBS.	ACCESSORIES				MARK	MNF.R		MODEL NO.	C.F.M.	E.S.P. IN. W.G.	MAX. HP.	MAX. WEIGHT LBS.	ACC.		MARK	MNF.R		MODEL NO.	C.F.M.	E.S.P. IN. W.G.	MAX. HP.	HEATING MBH	COOLING TOTAL/ SENSIBLE MBH	MAX. WEIGHT LBS.	ACCESSORIES					
							GREASE FILTERS	INTERNAL LIGHTS	FIRE PROTECTION	FACE MOUNTED CONTROLS									ROOF CURB	BOTTLE											BIRD SCREEN	ROOF CURB	FILTERS	INTAKE RAIN HOOD	GAS HEAT	STEAM HEAT
KH-1	* GREENHECK	* EXHAUST	* MAKEUP	GH	36X36X24	150	*	*	*	KEF-1	*		TCB-1-09-4	750	.75	.25	112				N/A															
KH-2	* * *			GH	36X36X24	150	*	*	*	KEF-2	*		TCB-1-09-4	750	.75	.25	112				N/A															

- NOTES
- KITCHEN HOODS SHALL OVERHANG RANGE A MINIMUM OF 3" ON EACH SIDE.

HEAT PUMP SCHEDULE

MARK	MITSUBISHI DAIKIN DESERT AIRE	MODEL NO.	TOTAL COOLING MBH	REV. CYCLE HEATING MBH	MINIMUM SEER OR IEER BTU/HR. W.	NOTES
HP-1	*	PURY-P144TKMU-A	144	104	20.2 IEER	1;2,3,4;
HP-2	*	PURY-P168TSKMU-A	168	125	19.7 IEER	1;2,3,4;
HP-3	*	PUY-A12NHA4	12	-	15.2 SEER	1;2,3,4;
CU-1	*	RCSS	62.1	-	-	1;2,3,4;

- NOTES
- COOLING CAPACITY BASED ON 95°F AMBIENT AIR TEMPERATURE.
 - HEATING CAPACITY BASED ON 47°F AMBIENT AIR TEMPERATURE.
 - CONDENSING UNIT AND AIR HANDLING UNIT SHALL BE OF SAME MANUFACTURER SPECIFICALLY DESIGNED TO OPERATE AS A SET.
 - SEER/IEER IS FOR THE ENTIRE SYSTEM.

FAN SCHEDULE

MARK	C.F.M.	E.S.P. IN. W.G.	MITSUBISHI DAIKIN GREENHECK	MODEL NO.	MAX. HP.	MAX. OPER. WEIGHT (LBS)	MAX. TIP SPEED F.P.M.	MAX. NOISE SONES	DIRECT	BELT	GRANITY DAMPER	ELECTRIC DAMPER	BIRD SCREEN	ROOF CURB	GENERAL NOTE: MARK SF=SUPPLY FAN MARK EF=EXHAUST FAN MARK RF=RETURN FAN
EF-1	1425	0.5	*	SQ-120-VG	.5	75	5219	10.5	*	*	*	*	*	*	1;
EF-2	235	0.3	*	SQ-75-VG	1/6	40	3520	6.0	*	*	*	*	*	*	1;

- NOTES
- INLINE CENTRIFUGAL FAN.

AIR DEVICE SCHEDULE

MARK	SIZE		TYPE	M/NFR	MODEL NO.	MATERIAL	FINISH	ACCESSORIES	MOUNTING	MTG HT.	THROW				MAX. NC	MAX. LOSS IN. W.C.	NOTES							
	FACE	NECK				STEEL (STL)	ALUMINUM (AL)	AL WITH STL FRAME	PRIMER	CLR BY ARCH	OPP BLADE DAMPER	PAR BLADE DAMPER	PLENUM	FIRE DAMPER				EQUALIZING GRID	LAY-IN	SURFACE	FLOOR TO BOTTOM	CEILING	4 - WAY	3 - WAY
A	24X24	6#	*		TDC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;
B	24X24	8#	*		TDC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;
C	8X8	6X6	*	*	350 RL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;
D	10X10	8X8	*	*	350 RL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;
E	12X8	10X6	*	*	350 RL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;
F	8X8	6X6	*	*	350 RL	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	30	.1	1;

- NOTES
- PAINT FLAT BLACK INTERIOR DUCT SURFACES VISIBLE FROM OUTSIDE THE GRILLE.

three inches = one foot

one and one half inches = one foot

one inch = one foot

three quarters inch = one foot

one half inch = one foot

three eighths inch = one foot

one quarter inch = one foot

one eighth inch = one foot

one sixteenth inch = one foot

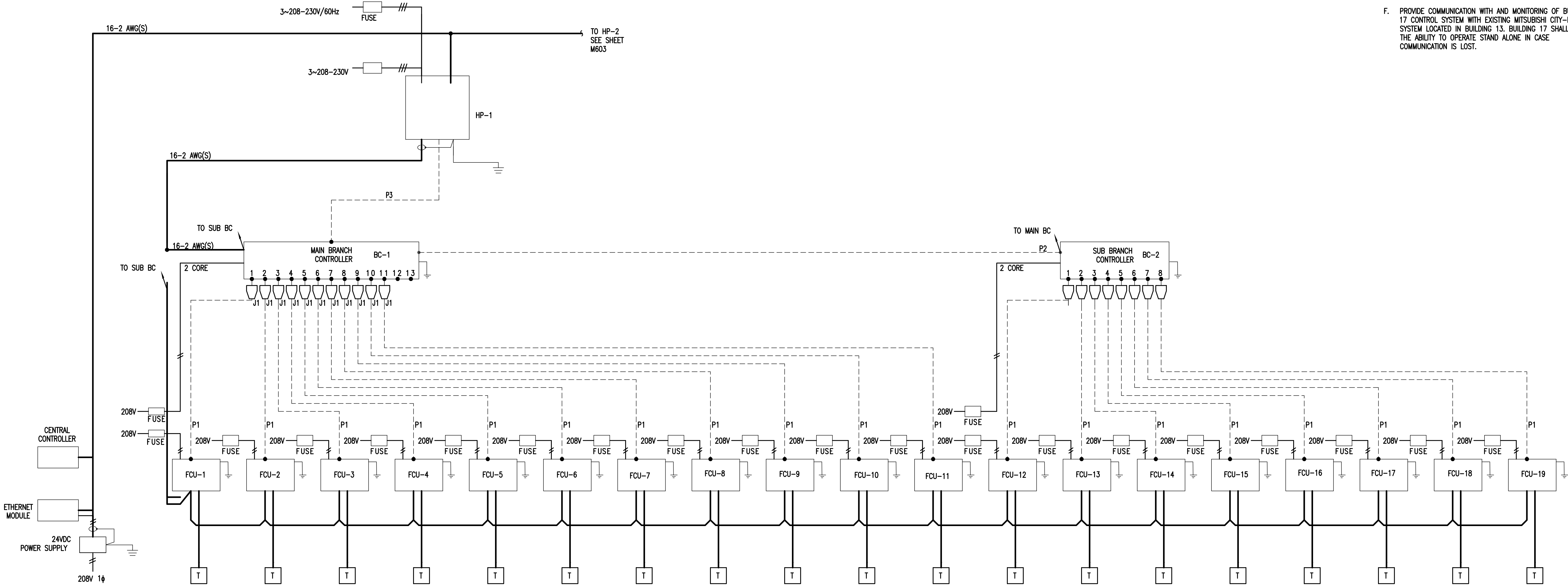
DIAGRAM SYMBOL LEGEND	
	POWER WIRE
	CONTROL WIRE
	REF. PIPE
	THERMOSTAT
	PIPING TEE
	PIPE REDUCER

PIPING LIST		
SYMBOL	LIQUID PIPE	GAS PIPE SIZE
P1	1/4	1/2
P2	3/8	3/4 7/8
P3	7/8	1-1/8
P4	3/4	
P5		7/8
P6	5/8	
P7		3/4

NOTE:
P2 IS THE LINE FROM THE MAIN BRANCH CONTROLLER TO THE SUB BRANCH CONTROLLER.

SHEET GENERAL NOTES:

- A. THE VRF SYSTEM SHOWN ON THIS DRAWING IS SCHEMATIC AND USES THE MITSUBISHI CITY-MULTI SYSTEM AS THE BASIS OF DESIGN. IF ANOTHER MANUFACTURER IS USED FOR THIS PROJECT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN MANUFACTURER'S RECOMMENDED SCHEMATIC AND INSTALL ACCORDING TO THAT SCHEMATIC.
- B. THE MITSUBISHI CITY-MULTI SYSTEM IS A TWO PIPE, VARIABLE REFRIGERANT FLOW SYSTEM. INSULATE BOTH LINES OF THE SYSTEM.
- C. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE SYSTEM SHOWING THE PROPOSED ROUTING OF REFRIGERANT PIPING WITHIN THE BUILDING
- D. ISOLATION BALL VALVES SHALL BE INSTALLED ON ALL PORTS OF THE BRANCH CONTROLLERS EVEN IF THE PORT IS NOT USED
- E. IDENTIFY REFRIGERANT PIPE AS REQUIRED IN SPECIFICATIONS WITH STENCILS OR PIPE MARKERS. IDENTIFICATION TO INCLUDE CONTROLLER PORT NUMBER AND FAN COIL UNIT ASSOCIATED WITH PIPE.
- F. PROVIDE COMMUNICATION WITH AND MONITORING OF BUILDING 17 CONTROL SYSTEM WITH EXISTING MITSUBISHI CITY-MULTI SYSTEM LOCATED IN BUILDING 13. BUILDING 17 SHALL HAVE THE ABILITY TO OPERATE STAND ALONE IN CASE COMMUNICATION IS LOST.



HP-1 PIPING SCHEMATIC
SCALE: NONE

Revisions:

Date:

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Drawing Title:

**CONTROL SCHEMATICS
MECHANICAL**

Approved: Project Director

Project Title:

**RENOVATE BUILDING 17
VA SALEM**

Location: **SALEM, VA**

Date: 03-18-2015

Checked: **WAW**

Drawn: **WSS**

Project Number:

658-13-120

Building Number:

17

Drawing Number:

2673

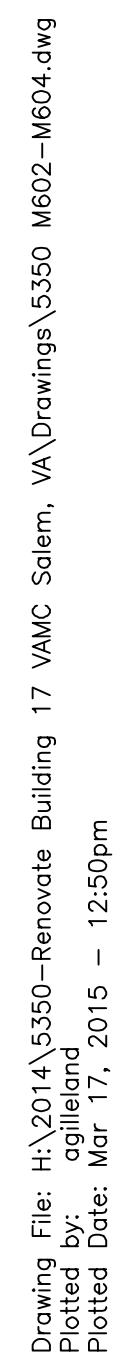
M602

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**OFFICE OF
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MANAGEMENT**

Department of
Veterans Affairs

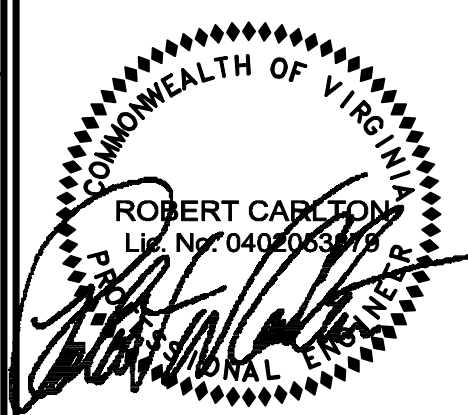
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Plotted By: cglebard
Date: Mar 17, 2015 - 12:49pm

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MANAGEMENT**



FINAL SUBMITTAL

CONTROL LEGEND

	FAN		APPLICATION SPECIFIC CONTROLLER
	DX COIL		COOLING COIL DRAIN PAN FLOAT SWITCH
	HEATING COIL		SILICON CONTROLLED RECTIFIER
	HOT GAS REHEAT COIL	AFMS	AIR FLOW MEASUREMENT STATION
	AIR FILTER	AI	ANALOG INPUT
	MOTOR STARTER	AO	ANALOG OUTPUT
	VARIABLE FREQUENCY DRIVE	ATM	ATMOSPHERIC PRESSURE
	DAMPER ACTUATOR (ELECTRONIC)	DI	DIGITAL INPUT
	DIFFERENTIAL AIR PRESSURE SWITCH	DO	DIGITAL OUTPUT
	DIFFERENTIAL PRESSURE SENSOR	I	INPUT
	AFMS AIR FLOW MEASURING STATION	NC	NORMALLY CLOSED
	DUCT MOUNTED, AVERAGING TEMP. SENSOR	NO	NORMALLY OPEN
	SPACE TEMPERATURE SENSOR	O	OUTPUT
	OCCUPANCY SENSOR	TSTAT	THERMOSTAT
	HUMIDITY SENSOR		

CONTROL POINTS SCHEDULE

MARK	TYPE	DESCRIPTION	NOTES
1	DO	OUTSIDE AIR DAMPER OPEN/CLOSED	
2	DI	FILTER PRESSURE SWITCH	
3	DI	FLOAT SWITCH	
4	DO	ENABLE/DISABLE AHU CONTROLS	
5	AI	SUPPLY AIR TEMPERATURE	
6	AI	MAU SUPPLY AIR HUMIDITY	
7	AI	SUPPLY FAN CURRENT SENSOR	
8	DI	SUPPLY FAN ON/OFF	
9	DO	EXHAUST FAN ON/OFF	
10	AI	CURRENT SENSOR	

VRF CONTROL POINT INTEGRATION SCHEDULE

READ	WRITE	DESCRIPTION	NOTES
READ	WRITE	SPACE TEMPERATURE SETPOINT	1;
READ		SPACE TEMPERATURE	1;
READ	WRITE	ON/OFF	1;2;
READ	WRITE	FAN SPEED	1;
READ		ERROR CODE	1;
READ		ALARM	1;

NOTE:

1. TYPICAL OF ONE PER FCU.
2. TYPICAL OF ONE PER HEAT PUMP.

MAU-1 CONTROL SEQUENCE

SUPPLY FAN OPERATING CONTROLS SHALL INCLUDE

1. DISCONNECT SWITCH
2. HAND OFF AUTO SELECT SWITCH
3. FLOAT SWITCH MOUNTED IN THE COOLING COIL DRAIN PAN

WITH THE SAFETY CONTROLS IN THE NORMAL POSITION AND THE VFD IN THE AUTO POSITION THE FAN MOTOR SHALL ALWAYS RUN AND THE UNIT SHALL MAINTAIN SUPPLY AIR TEMPERATURE DURING OCCUPIED TIMES. DURING UNOCCUPIED TIMES TEMPERATURE SHALL RESET TO 60°F IN HEATING MODE (ADJUSTABLE) AND 80°F IN COOLING MODE (ADJUSTABLE).

ELECTRIC HEATING COILS:

1. IN HEATING MODE, THE CONTROLS SHALL MODULATE SCR CONTROLLED HEATER TO MAINTAIN SUPPLY AIR TEMPERATURE AT SETPOINT.

DX COOLING COILS:

1. IN HEATING MODE, THE CONTROLS SHALL OPERATE THE DX COOLING STAGES IN SEQUENCE TO MAINTAIN SUPPLY AIR TEMPERATURE AT SETPOINT.

DEHUMIDIFY MODE:

1. FACTORY SUPPLIED CONTROLS SHALL MODULATE THE DX COOLING COIL IN COOLING MODE AND THE SCR HEATING IN HEATING MODE AND HOT GAS REHEAT TO MAINTAIN SUPPLY AIR TEMPERATURE AND HUMIDITY AT SETPOINT

SUPPLY FAN:

1. THE SUPPLY FAN SHALL RUN CONTINUOUSLY TO MAINTAIN SPACE PRESSURIZATION.

KITCHEN EXHAUST FANS CONTROL SEQUENCE

EXHAUST FAN OPERATING CONTROLS SHALL INCLUDE

1. DISCONNECT SWITCH
2. ON/OFF SWITCH LOCATED ON FACE OF KITCHEN HOOD

ALARMS:

1. AN ALARM SHALL BE GENERATED WHEN THE CURRENT SENSOR IS $\pm 10\%$ OF SETPOINT. SETPOINT SHALL BE DETERMINED DURING TEST AND BALANCE.

EXHAUST FAN OPERATION:

1. WITH THE SAFETY CONTROLS IN THE NORMAL POSITION THE FAN MOTOR SHALL BE TURNED ON AND OFF BY THE SWITCH LOCATED ON THE FACE OF THE HOOD.

GENERAL EXHAUST FAN EF-1 CONTROL SEQUENCE

EXHAUST FAN OPERATING CONTROLS SHALL INCLUDE

1. DISCONNECT SWITCH
2. ADJUSTABLE SPEED CONTROLLER

WITH THE SAFETY CONTROLS IN THE NORMAL POSITION AND THE VFD IN THE AUTO POSITION THE FAN MOTOR SHALL BE TURNED ON AND OFF BY THE DDC SYSTEM.

EXHAUST FAN SPEED CONTROL:

1. THE DDC SYSTEM SHALL SET THE AIRFLOW RATES AS NOTED ON THE DRAWINGS. THE FAN SHALL RUN CONTINUOUSLY

GENERAL EXHAUST FAN EF-2 CONTROL SEQUENCE

EXHAUST FAN OPERATING CONTROLS SHALL INCLUDE

1. DISCONNECT SWITCH
2. ADJUSTABLE SPEED CONTROLLER

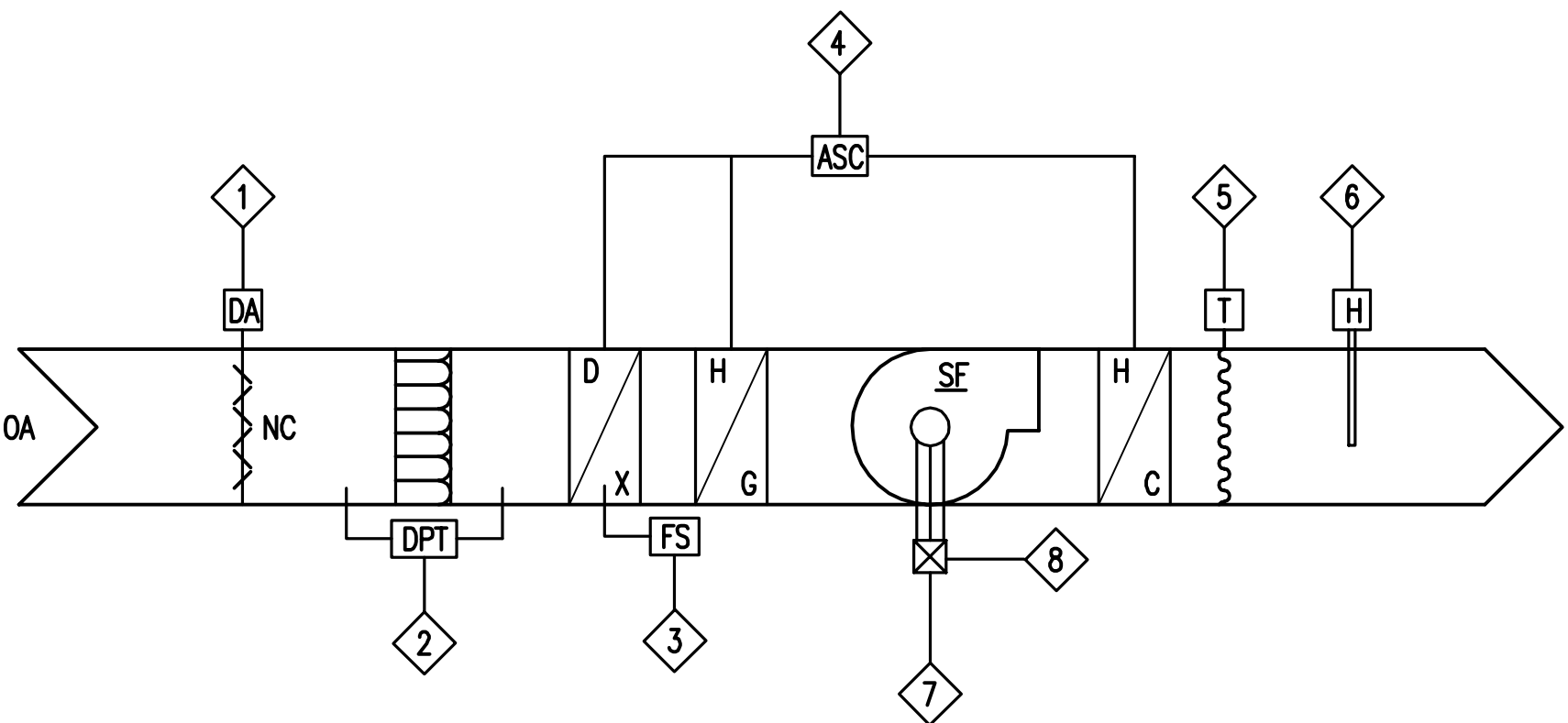
WITH THE SAFETY CONTROLS IN THE NORMAL POSITION AND THE VFD IN THE AUTO POSITION THE FAN MOTOR SHALL BE ENERGIZED BY A LINE VOLTAGE THERMOSTAT WHENEVER THE SPACE TEMPERATURE IS ABOVE 85°F (ADJUSTABLE).

EXHAUST FAN SPEED CONTROL:

1. THE DDC SYSTEM SHALL SET THE AIRFLOW RATES AS NOTED ON THE AIR BALANCE DIAGRAM.

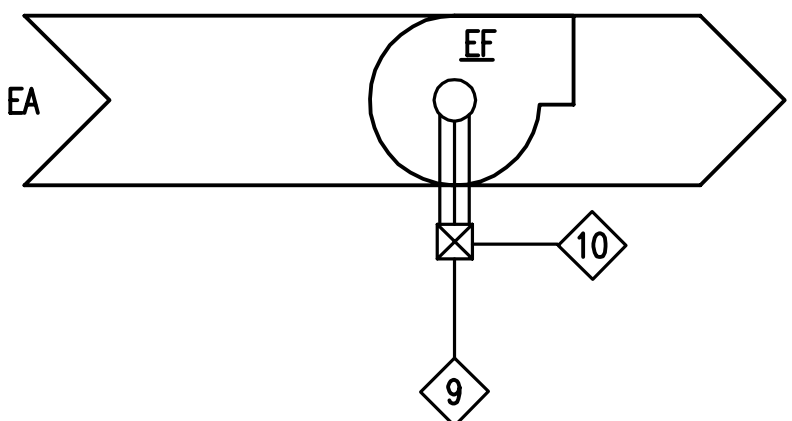
CONTROLS INTEGRATION NOTES

- PROVIDE CONTROL INTEGRATION INTO CAMPUS DDC SYSTEM. CAMPUS SYSTEM HAS AN EXISTING MITSUBISHI CITY MULTI TG-2000 FRONT END INTERFACE. PROVIDE GRAPHICS ON THE FRONT END INTERFACING DEPICTING THE BUILDING FLOOR PLAN, IDENTIFYING UNIT LOCATIONS AND ZONES SERVED. SEE VRF CONTROL POINT INTEGRATION SCHEDULE FOR ALL REQUIRED POINTS. PROVIDE SEAMLESS INTEGRATION FOR CONTROL OF ALL READABLE AND WRITABLE POINTS LISTED IN THE SCHEDULE.
- PROVIDE GRAPHICS FOR EACH FAN COIL UNIT, AIR HANDLING UNIT AND EXHAUST FAN WITHIN THE PROJECT SCOPE.



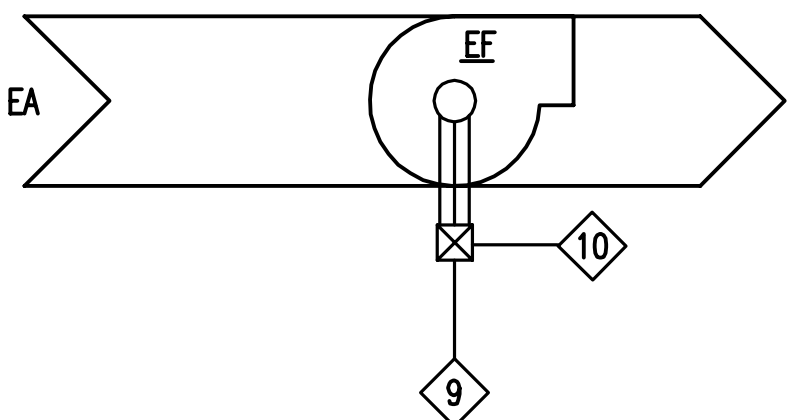
AIR HANDLING UNIT MAU-1

SCALE: NONE



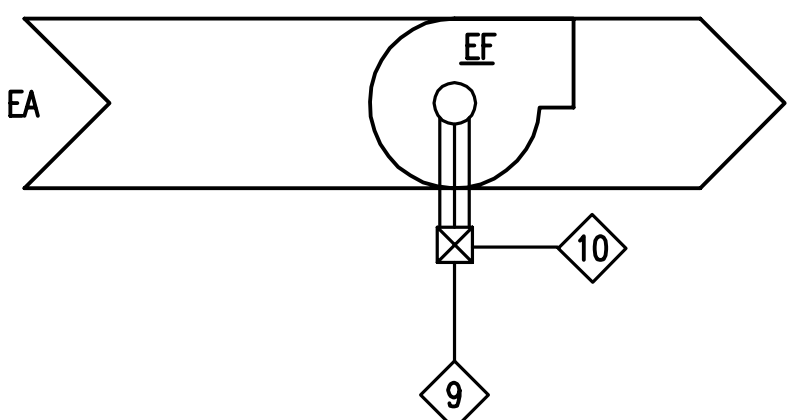
KITCHEN HOOD FANS

SCALE: NONE



GENERAL EXHAUST FAN EF-1

SCALE: NONE



GENERAL EXHAUST FAN EF-2

SCALE: NONE